

# TK1914 C++ Programming

## Lab Assignment 4

### User-Defined Functions I

1. Write a program that input 2 integers, and pass them to function named `divisible()` that will determine whether the first value is evenly divisible by the second value. Your function should return `true` if it is divisible and `false` otherwise.

Write a `cout` statement in `main` function to display appropriate messages based on the result of the function call.

2. Write a function named `alternatingSum(n)` that computes and returns the sum of the numbers 1 through some integer `n` where the sign alternate between `+` and `-`. For example, `alternatingSum(7)` should return 4 because  $1 - 2 + 3 - 4 + 5 - 6 + 7 = 4$ . You may assume that `n` is a positive integer.

Write a `main` function that reads an integer `n` and calls `alternatingSum(n)` function and prints the result.

3. Write a program that will call a function named `isTriangle()` that accepts 3 float values and returns `true` if the three values are the side of a triangle and `false` otherwise. For three lengths to form a triangle, the sum of any two lengths must exceed the third length.

Write a `main` function to read 3 float values, call the function `isTriangle()` and prints appropriate messages based on the result of the function call.

4. Write a `void` function named `drawTriangle()` that accepts an integer value `n` and a char value `ch`. The function then output the triangular shape based on the value passed. For example, `drawTriangle(5, '%')` will print the following:

```
%
%%
%%%
%%%%
%%%%%
```

Write a `main` function that reads the value `n` and `ch` and calls the function.

5. The volume  $v$  of a cylinder is given by the formula  $v = \pi r^2 l$ , where  $r$  is the cylinder's radius and  $l$  is the length. Using the formula, write a C++ function name `cylinderVolume()` that accepts the radius and length of a cylinder and returns its volume. You may use the value 3.1415 for  $\pi$ .

Write a `main` function that reads the radius and length, calls the function and prints the volume.